

**Notice of Allowability**

Application No.

09/832,132

Applicant(s)

CHEN, JUIN-HWEY

Examiner

James S. Wozniak

Art Unit

2626

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the after final amendment filed on 11/20/2006.
2. ☒ The allowed claim(s) is/are 1-19 and 29-47 (now claims 1-38).
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |   |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application                     |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input type="checkbox"/> Examiner's Amendment/Comment                              |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|  | 9. <input type="checkbox"/> Other _____   |

## DETAILED ACTION

### *Response to Amendment*

1. In response to the office action from 7/25/2006, the applicant has submitted an amendment canceling claims 20-28, filed on 11/20/2006. Remaining claims 1-19 and 29-47 were indicated as being allowable for the reasons given in the prior Office action (see Final OA from 7/25/2006). Thus, these claims are allowable over the prior art of record for those reasons, which have been repeated below.

### *Allowable Subject Matter*

2. **Claims 1-19 and 29-47** are allowable over the prior art of record.

3. The following is an examiner's statement of reasons for allowance:

With respect to **Claims 1 and 29**, the prior art of record fails to explicitly teach or fairly suggest, either singly or in combination, a method or system for searching for N preferred vector quantization (VQ) codevectors in a noise feedback coding (NFC) comprising: predicting a speech signal to derive a residual signal, deriving a zero-input response (ZIR) error vector common to each of the N VQ codevectors by setting an input speech vector to zero (*Specification, Paragraph 227*), wherein the ZIR error vector is a component of a quantization error vector, deriving N zero-state response (ZSR) error vectors each based on a corresponding

one of the N VQ codevectors by setting filter memories to zero (*Specification, Paragraphs 227 and 234*), wherein each of the N ZSR error vectors is a further component of a quantization error vector, and selecting the preferred one of the N VQ codevectors corresponding to the residual signal based on the ZIR error vector and N ZSR error vectors.

Although Watts discloses the use of ZIR and ZSR to perform a codevector update based on minimizing an error quantity (Pages 276-277, Section 3), the presently claimed invention, as is correctly noted by the applicant (Amendment from 5/8/2006, Pages 22-23), recites that ZIR and ZSR error vectors are part of a *quantization error vector (the difference between a quantizer input and output)* used to select a preferred VQ codevector. Watts, on the other hand, discloses the use of ZIR and ZSR as part of a *reconstruction error (the difference between input and reconstructed speech)*. Thus, ZIR and ZSR in Watts are utilized in a different type error calculation than is recited in the presently claimed invention and Watts fails to explicitly teach or fairly suggest ZIR and ZSR error vectors that are components of a quantization error vector used for selecting a preferred VQ codevector.

As is further noted by the applicant, the presently claimed invention is directed towards noise feedback coding, which is defined as passing a difference signal between a quantizer input and output through a filter in a noise feedback path whose output is then added to a prediction residual to form the quantizer input signal (*Amendment from 5/8/2006, Page 21*). The disclosure of Watts makes no mention of noise feedback coding and, as noted above, also fails to teach the determination of a quantization error vector in the selection of a preferred VQ codevector. Thus, Watts fails to teach vector quantization in an NFC system, as is required by the presently claimed invention.

Therefore, for at least the above reasons, Watts fails to teach the invention recited in claims 1 and 29.

**Claims 2-19 and 30-47** further limit allowable independent claims, and thus, are also allowable over the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


#### *Conclusion*

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James S. Wozniak whose telephone number is (571) 272-7632. The examiner can normally be reached on M-Th, 7:30-5:00, F, 7:30-4, Off Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached at (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James S. Wozniak  
12/4/2006



DAVID HUDSPETH  
SUPERVISORY PATENT EXAMINER  
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